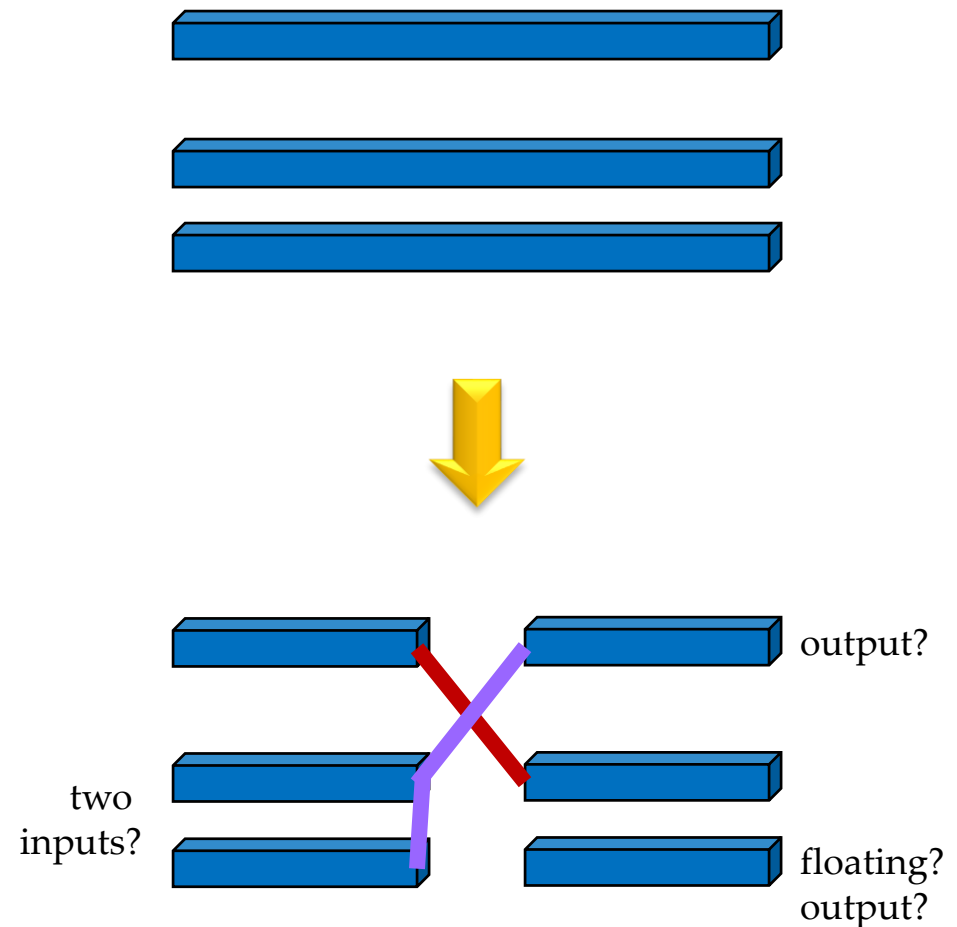


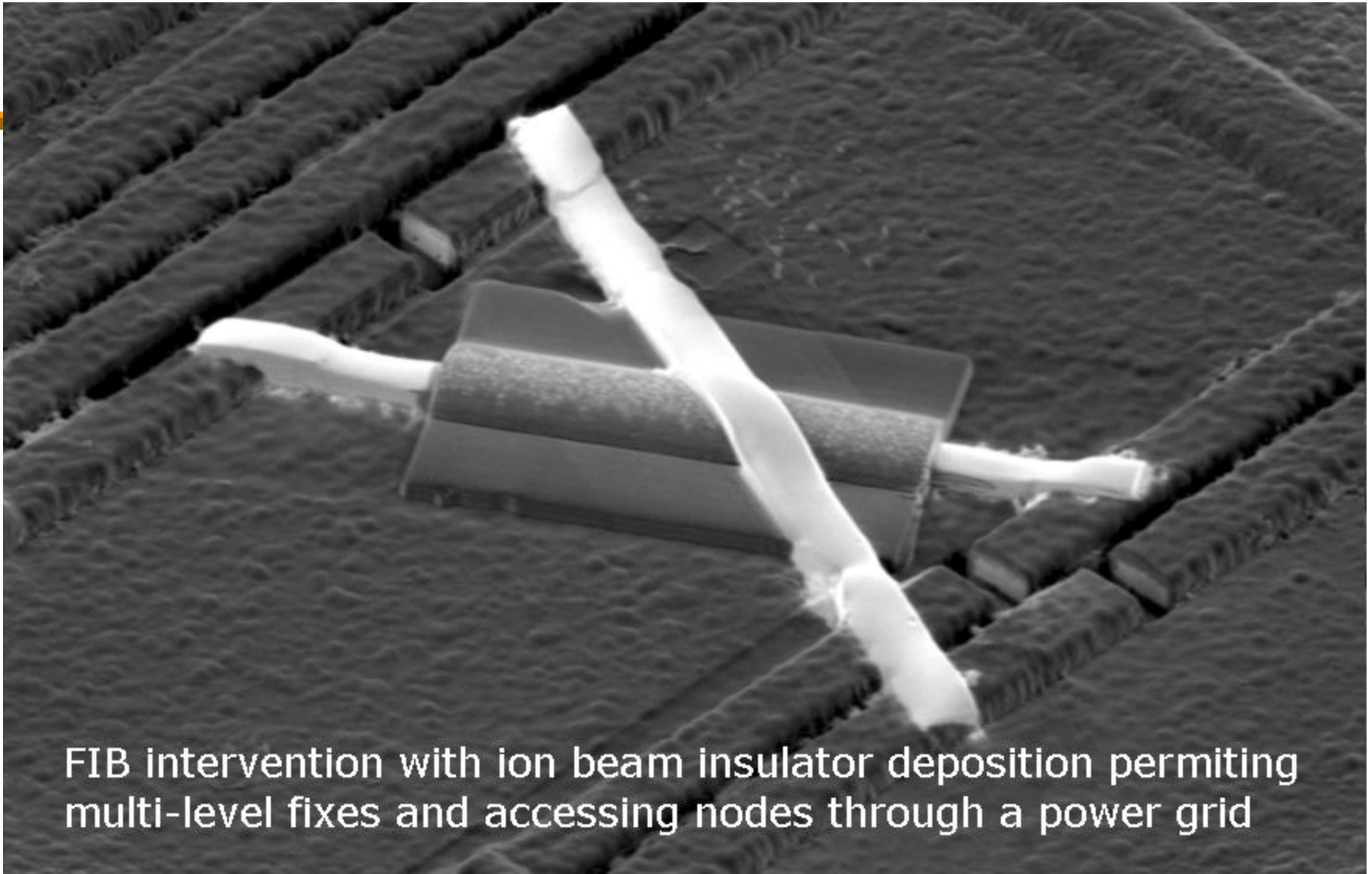
VLSI CHIP REPAIR (FOCUSED ION BEAM (FIB))

Focused Ion Beam (FIB) Repair

- Some key FIB operations:
 - “Drilling down” through layers
 - Cutting specific wires
 - Laying down insulating materials
 - Laying down wires



Focused Ion Beam (FIB) Repair



Focused Ion Beam (FIB) Repair

- Specifications from EAG Laboratories
 - Employs a focused Ga⁺ ion beam to image, etch, and deposit materials
 - 4–5 nm resolution
 - approx. 20 nm accuracy
 - Can deposit tungsten, platinum, or silicon dioxide with appropriate gas chemistries
- Looks like approx. 12 metal pitches in 15 μm → lambda approx. 0.18 μm which implies a 0.35 μm technology

